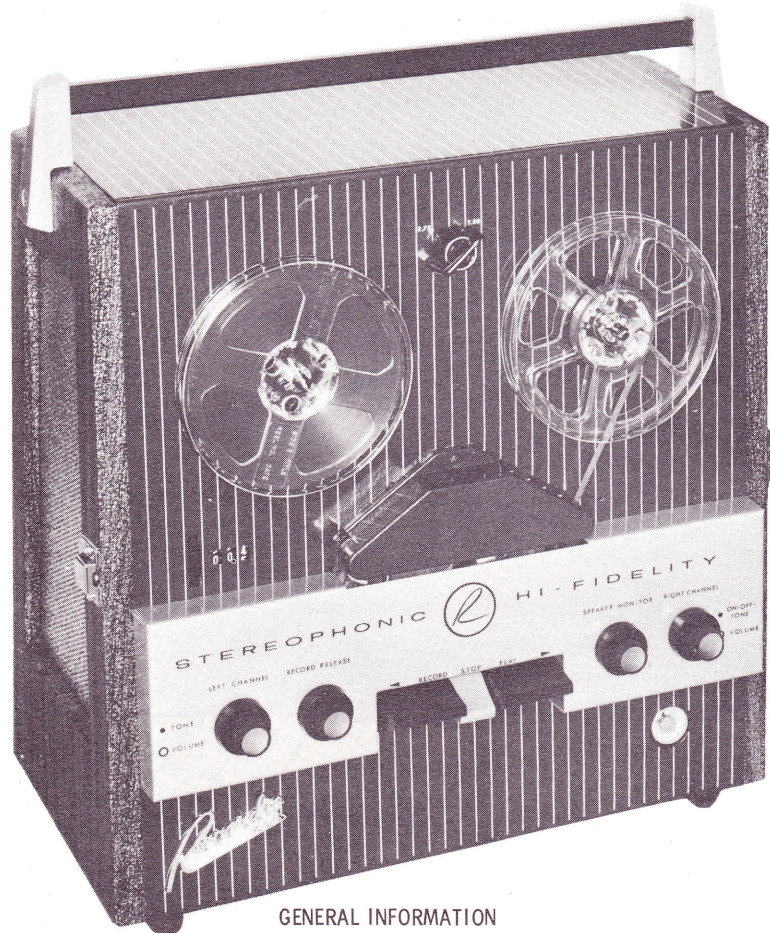
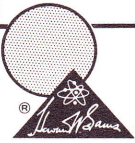




GENERAL INFORMATION

The Recordio Model 230 is a two-speed ($3\frac{3}{4}$ and $7\frac{1}{2}$ ips) tape recorder, designed to record and play back dual-track monaural recordings, and in addition, play back four-track prerecorded stereophonic tapes.

The unit uses pushbutton control for each tape transport mode. The modes of operation are: Rewind (←), Record, Stop, Play, and Fast Forward (→).

Dual-track recording is used, giving two full-length recordings on a reel of tape. Any size reel up to 7-inches can be used.

Operate the recorder on 115 volts AC, 60 cycle, supply only.

Manufactured By:

Recordio Corporation
Charlotte, Michigan

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of CQ492

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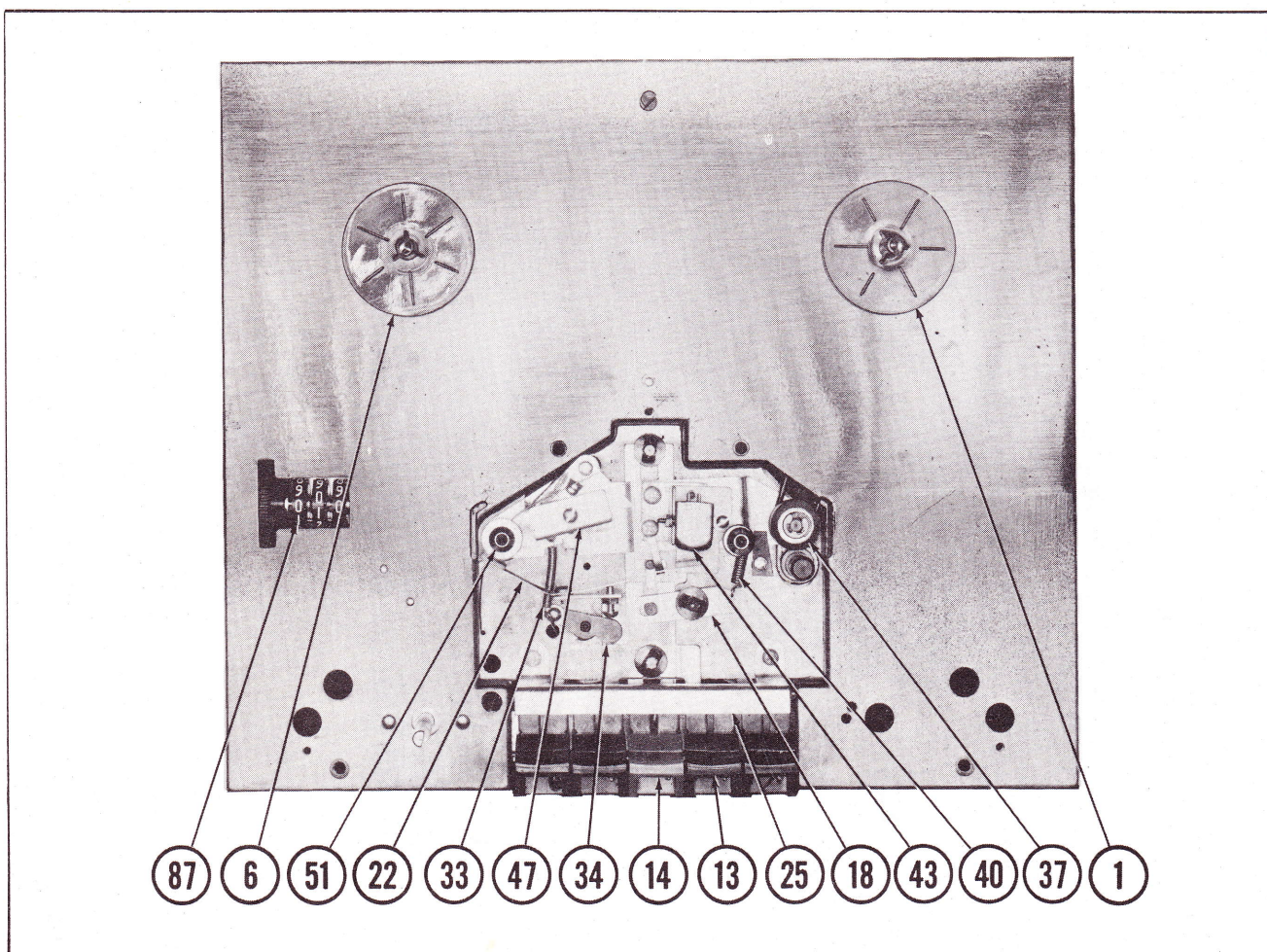


FIG. 1 TOP VIEW OF MECHANISM WITH COVERS REMOVED

FUNCTION OF CONTROLS AND PUSHBUTTONS

On-Off, Tone, Volume – Right Channel

This is a dual control located at the extreme lower right side of the front panel. The large outer rim controls the volume of the right channel when playing stereophonic recordings. The small inner knob turns the unit on and adjusts the tone for the right channel.

Speaker Monitor

This control is located to the left of the On-Off switch. It serves as a speaker control for monitoring a recording in process. Turning this control clockwise turns on the left interval speaker and turning the control counterclockwise disconnects the speaker. The speaker monitor switch does not control the right interval speaker or extension speakers.

Tone, Volume – Left Channel

This control is located at the extreme lower left side of the front panel. The large outer rim controls the volume of the left channel and also controls the recording level when making a recording. The small inner knob adjusts the tone for the left channel.

Record Release

Prevents a recording from being accidentally erased by pressing the Record pushbutton by mistake.

To record, turn the Record Release clockwise and at the same time, depress the Record button.

Speed Change

CHANGE TAPE SPEED

CAUTION: Do not turn the speed change knob unless the Stop button is depressed.

Rewind Button (←)

Rapidly winds the tape from the take-up reel to the supply reel.

Stop Button

When depressed, tape movement in any mode is halted. When the recorder is not in use, the Stop button must be depressed.

Play Button

When depressed, the unit will play back monaural or stereo prerecorded material.

Fast Forward (→)

Rapidly winds the tape from the supply reel to the take-up reel without recording or playing back the tape.

TAPE INDICATOR

Set the counter to zero by turning the reset knob toward the top of the recorder when starting to record or play back a reel of tape. If the reading of the counter is noted at various points in the tape travel, new program selections can be indexed or previously recorded selections can be located.

RECORD LEVEL INDICATOR

The record level indicator gives a visual analysis of the correct volume setting for the Record function. Adjust the Left Channel Volume control to the point where the record level indicator does not quite close on the peak passages.

REAR PANEL CONNECTIONS

External Speakers — Left and Right

Provides a connection for external speakers. When external speakers are used, the internal speakers are automatically disconnected.

Mic. Input

Plug microphone into this jack for recording or for public address use.

Recording Input

Used to record audio signals from a radio,

phonograph, or television receiver.

Stereo Input

Used to connect phono pick-up cables from a stereo phonograph to the recorder for playing stereo records.

Stereo - Mon. Switch.

Set switch in the Stereo position when playing stereo tapes or records, and in the Mon. position when playing monaural tapes or records.

OPERATING INSTRUCTIONS

Preparing for Operation

1. Remove the lid from the case.
2. Remove power cord and microphone from the storage compartment in the rear of the case.
3. Depress the Stop button.
4. Connect the power cord to an outlet of the proper rating.

CAUTION: Severe damage will result if the unit is connected to a power that is not of the proper specifications.

5. Place the speed control knob to the desired speed.

When the forward or rewind buttons are depressed, the Record and Play buttons are locked so that they cannot be pressed down, with the possibility of spilling the tape. The buttons should always be pressed down firmly so they latch. Always depress the Stop button before changing functions or speed. When the recorder is not in use, always depress the Stop button.

Threading the Tape

1. Place a reel of tape on the supply (left) making sure the reel slots catch the protrusions of the spindle pan. Place the reel catch down to lock the reel in place.
2. Place an empty reel on the take-up pan (right). Again make sure the reel slots catch the protrusions of the spindle pan. Place the reel catch down to lock the reel in place.

3. Release the Stop button by pressing lightly on any one of the other four pushbuttons so that all buttons are in the released position. This releases the tape brakes, simplifying tape threading.
4. Unwind about 14 inches of tape from the supply reel. Hold a section of the tape straight with both hands and insert the tape in the tape slot. The dull-coated side of the tape must face the recording head.
5. Insert the free end of the tape into one of the radial slots in the take-up reel. While holding the tape in place, rotate the reel to secure the tape and take up the slack.

TO RECORD FROM A MICROPHONE

1. Insert the microphone plug into the jack on the rear panel labeled MIC.
2. With the Stop button depressed, turn the right On-Off-Volume control clockwise until a click is heard. Allow the recorder to warm up until the record level indicator is illuminated.
3. Move the speed change knob to the desired speed. As a general rule, 3 3/4 ips for voice recordings and 7 1/2 ips for music recordings.
4. Move the Record Release knob slightly clockwise and simultaneously depress the Record button until it latches.
5. Hold the microphone 3 to 4 inches away from the mouth and speak in a normal tone of voice. Adjust the Left Channel Volume control until the record level indicator almost closes on the

louder or peak passages. The Right Channel Volume control should be turned to minimum before recording. The Tone controls have no effect during recording.

To Record from Phonograph

1. Insert the phonograph output plug into the jack on the rear panel labeled Input.
2. Start the recorder and proceed with the recording as described under "To Record from Microphone."

NOTE: The microphone should not be connected to the unit when making a recording from another source.

To Use the Second Track

1. Depress the Stop button when the tape has been wound onto the take-up reel.
2. Remove the take-up reel, turn it over and place it on supply pan.
3. Place empty reel on take-up pan.
4. Thread tape and proceed with recording as previously described.

To Play Monaural Recordings

1. Thread the tape as described under "Threading the Tape."
2. Set the speed knob to the speed at which the recording was made.
3. Place the Speaker Monitor control in the "On" position.
4. Turn the Right Channel Volume control to minimum.
5. Press the Play button and adjust the Left Channel Volume and Tone control to the desired listening level.

NOTE: To monitor the sound being recorded, turn the Speaker Monitor knob clockwise.

Care must be taken to keep the microphone far enough from the recorder to prevent squeal due to acoustic feedback.

Rewind (◀) Or Fast Forward (▶)

When it is desirable to play a certain portion of a tape over again, it is not necessary to rewind the entire reel. By depressing the rewind button (◀) the tape will reverse at a rapid speed. By depressing the fast forward button (▶) the tape will advance at a rapid speed.

To Record from Radio or TV Receiver

It is possible to record sound from an external source by placing the microphone in front of the speaker, however, this is not recommended, as background noise will be recorded along with the desired program material.

For noise free recordings, record directly from the speaker voice coil terminals of the radio or TV receiver as follows:

1. Insert the plug of a patch cord into the jack on the rear panel labeled Input.
2. Connect the patch cord clips to the speaker voice coil terminals of a TV receiver.
3. Adjust the volume control of the radio or TV receiver to normal room volume. Set the tone control of the radio or TV receiver to full treble.
4. Proceed with the recording as described under "To Record from Microphone."

To Play Stereophonic Tape

1. Thread the tape as described under "Threading the Tape."
2. Set the speed knob to the speed at which the tape was recorded.
3. Place Speaker Monitor control to the "On" position.
4. Adjust the Right and Left Channel Volume and Tone controls to the desired listening level.

DISASSEMBLY INSTRUCTIONS

To Remove Unit from Case

1. Remove all push-on type knobs from the front panel.
2. Remove two Phillips head screws from lower escutcheon. Remove escutcheon.
3. Remove push-on type speed control knob.
4. Remove screw from head cover and remove head cover.
5. Remove four screws from front trim panel and remove trim panel.
6. Remove screws from sub-panels on rear of case.

7. Remove screws from top of cabinet.
8. Remove two screws from front mechanism panel.
9. Lift tape transport and amplifier assembly partially out front of cabinet. Unplug the four speaker leads and plug, remove AC cord clamp, and remove the unit from the case.

To Remove Amplifier from Transport Mechanism

1. Remove seven sheetmetal screws from amplifier. Remove bottom cover.
2. Remove motor and power transformer plug from amplifier chassis.
3. Disconnect the four leads from the record-play-

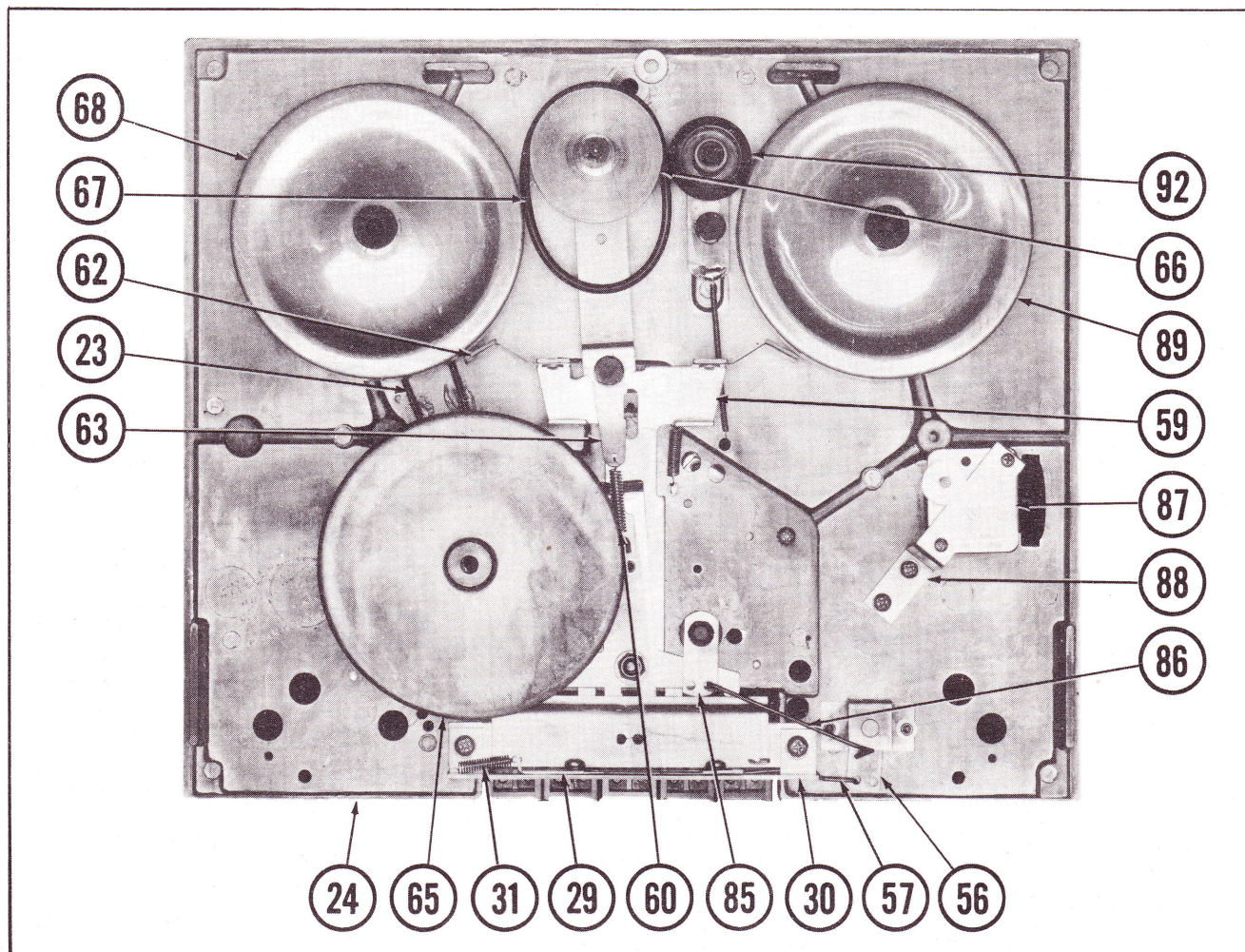


FIG. 2 BOTTOM VIEW OF MECHANISM

- back head. Pull leads through hole in front mechanism plate.
4. Remove Speaker Monitor switch from front mechanism plate.
5. Remove two screws from each end of amplifier chassis.
6. Carefully lift the amplifier away from the transport mechanism and disconnect the play-record switch actuating link.
7. To reassemble, reverse the foregoing procedure.

CLEANING

Most defects, other than wear or breakage, can be traced to dirty surfaces. Record-Playback head (43), capstan, and pressure roller (37) accumulate a coating of tape oxide, which is worn off the tape as it passes these parts. This accumulation should be

periodically removed because it will cause faint recording and poor playback. Wipe these surfaces carefully with a clean cloth. If dirt is caked or hard and will not come off with a dry cloth, dampen the cloth slightly with alcohol.

LUBRICATION

All rotating parts have generous size Oilite bearings, which are factory lubricated. Under normal use, no further lubrication is necessary. In heavy duty service, the following parts should be lubricated once a year with a drop of a good grade motor oil.

1. The top and bottom motor bearings.
2. The capstan bearing.
3. Pressure roller (37) bearing.

4. All idler and drive wheel bearings.
5. The reel-spindle bearings.

Be careful not to overlubricate. Oil must be kept off all rubber idlers and belts, the flywheel rim, and off any parts that may transfer oil to them. Always wipe excess oil from lubricated parts.

Occasionally remove foreign matter from under the pushbutton assembly and place a drop of oil on the sliding lever members.

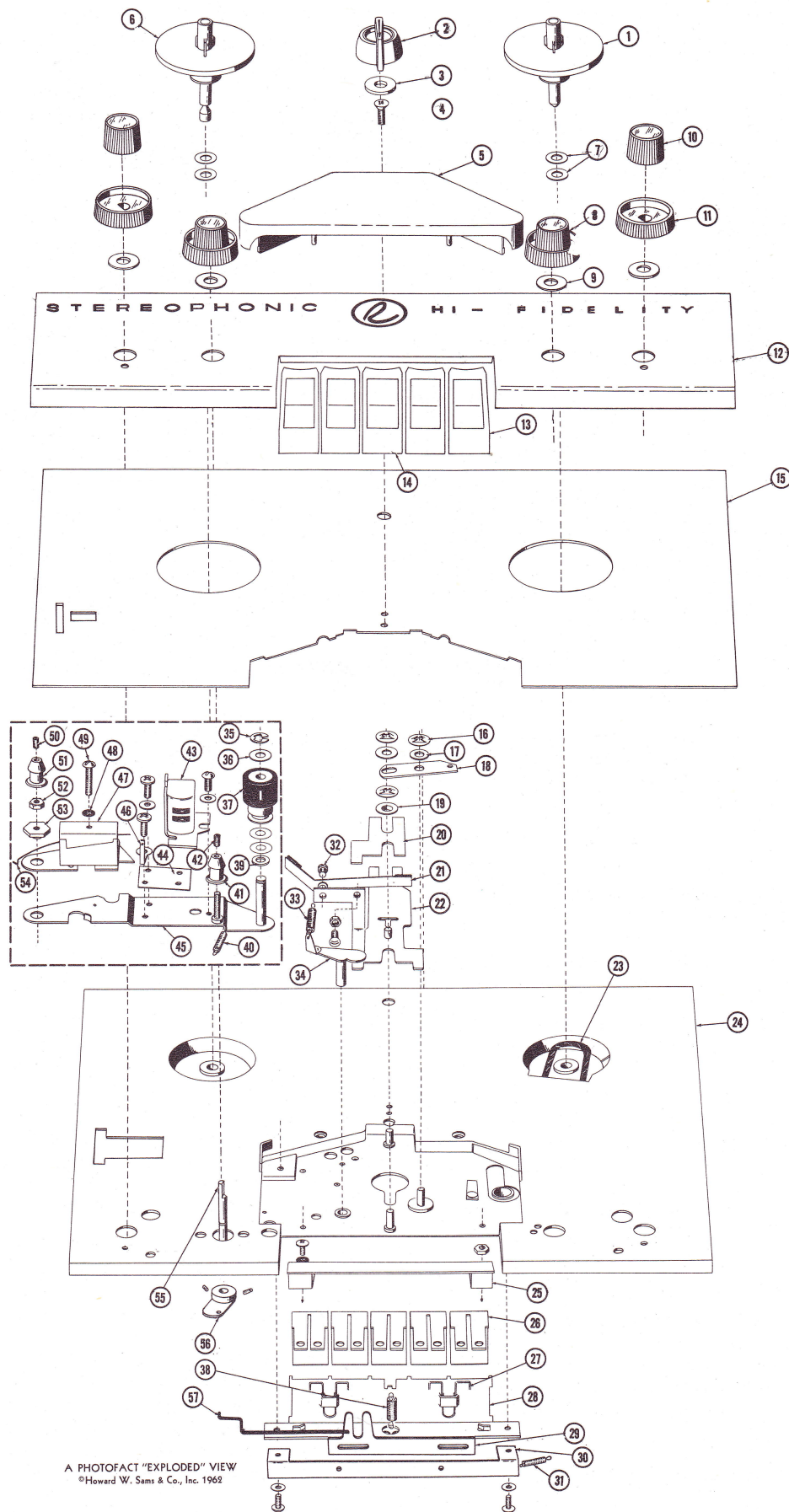


FIG. 3A EXPLODED VIEW OF PARTS ABOVE BASEPLATE

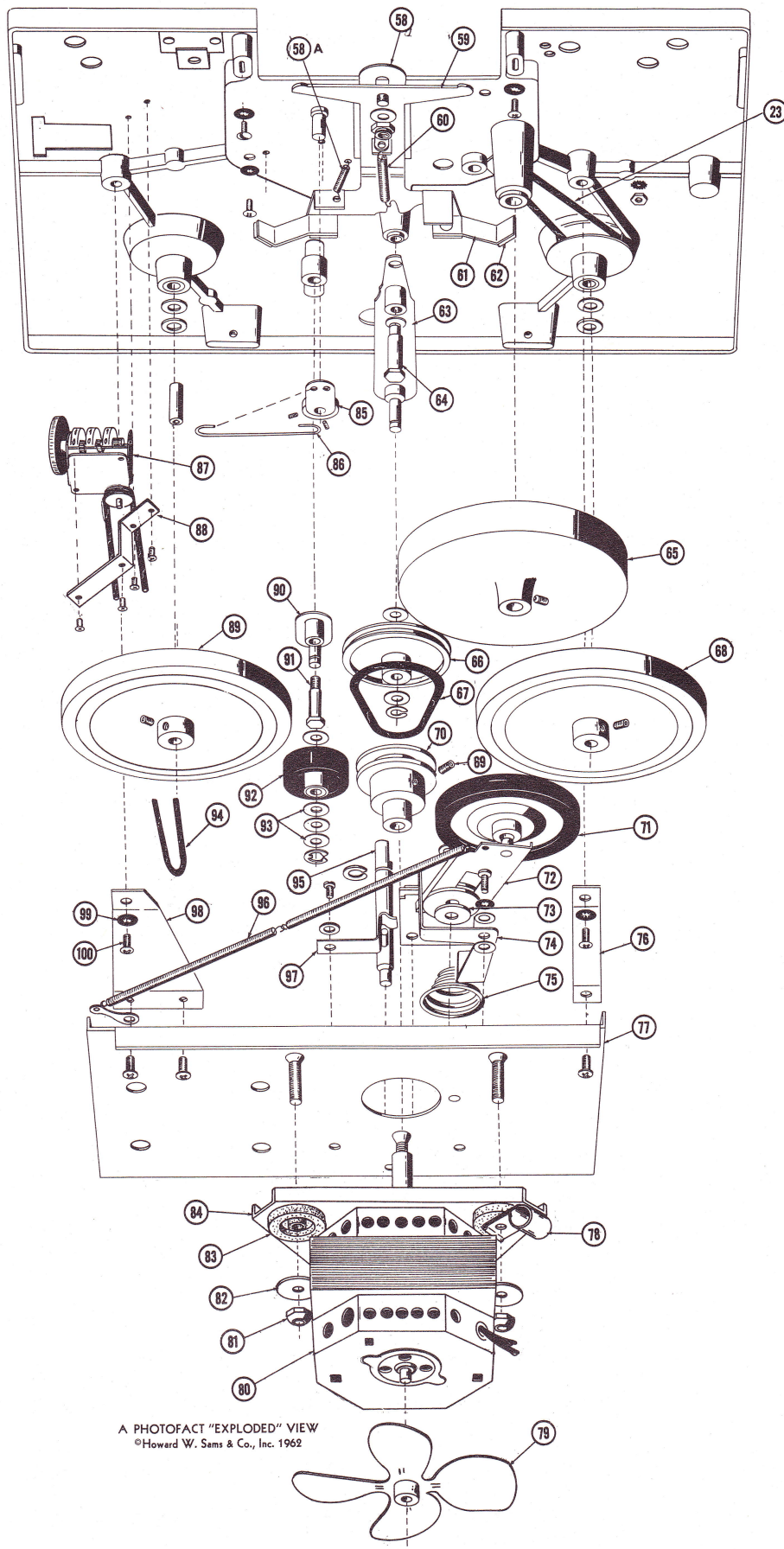


FIG. 3 B EXPLODED VIEW OF PARTS BELOW BASEPLATE

MECHANICAL ADJUSTMENTS

Pressure Pad Adjustment

1. Remove front escutcheon (12).
2. Depress the Play button. Do not turn the recorder on.
3. Using a pencil-type postal scale, check the pressure required to just pull the right pad away from the record-playback head (43). If necessary, adjust locked adjustment screw until a reading of $1 \frac{3}{4}$ ounce $\pm$ $\frac{1}{4}$ ounce is obtained.
4. Adjust guide post pressure pad (left pad) by bending the pressure pad spring (21). It must be adjusted for minimum pressure against the tape.
5. After making the adjustment, depress the Stop button and replace the front escutcheon (12).

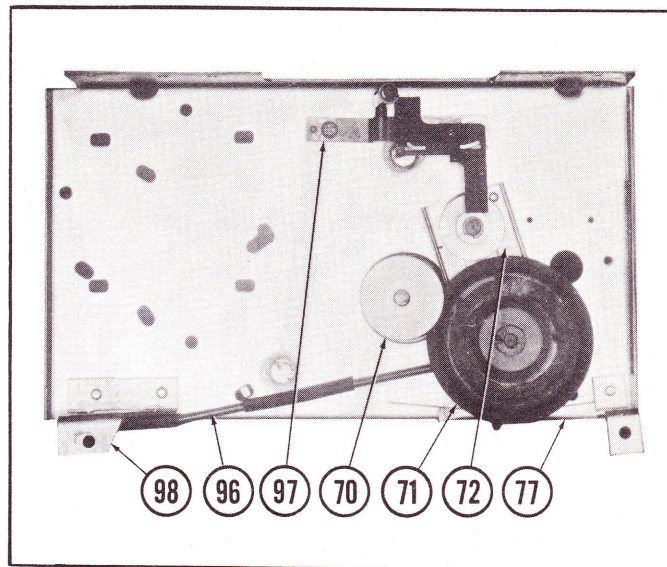


FIG. 4 MOTOR AND TRANSFORMER MOUNTING PLATE

Erase Head

1. With tape properly threaded, turn recorder on and depress the Record button. Allow the tape to run for a few seconds. Leaving the Record button depressed, turn the recorder off.
2. Check to see that the erase head (47) is parallel with the tape. Make sure that the top edge of the tape coincides with the top end of the diagonal slot in the erase head (junction of long diagonal and short vertical slot).
3. To adjust the level of the tape, loosen set screw (50) and rotate tape guide post (51) to move the tape up or down.

Brake Shoe

1. With all pushbuttons in the up position, brake

pads should clear the brake drums (68) and (89) by $\frac{1}{8}$ inch.

2. Depress the Stop button while observing the brake pads. Both brake pads must contact the brake drums at the same time and with equal pressure.
3. If necessary, adjust the pressure by bending brake spring (61).

Record-Playback Head Alignment

Using a standard alignment tape, adjust the azimuth adjusting screw for maximum high-frequency response. Head height may be adjusted by loosening the two nuts on the side of the Record-Playback head and moving the head up or down until the top edge of the tape is even with the top edge of the top pole piece.

TROUBLE CHART

Symptom	Cause	Remedy
Pushbuttons fail to latch into position.	1. Lock plate spring (38) disconnected or broken.	1. Connect or replace spring (38).
No drive in Record or Play modes.	1. Idler tension springs (96) disconnected or broken. 2. Idler slide plate (72) binding on bushing (73), preventing idler wheel (71) from moving forward.	1. Connect or replace springs (96). 2. Check slide plate (72) and bushing for burrs. Clean with alcohol.
No take-up during Play or Record.	1. Take-up drive belt (23) disconnected or broken. 2. Reel pan shaft binding. 3. Oil on take-up drive belt (23).	1. Connect or replace take-up drive belt (23). 2. Clean spindle bearing and lubricate bearing. 3. Clean belt (23) and pulley surfaces.
No Fast Forward or Rewind.	1. Idler lever tension spring (60) disconnected or broken. 2. Idler drive belt (67) broken or not properly connected. 3. Oil on idler drive belt (67) and pulley surfaces.	1. Connect or replace spring (60). 2. Replace idler drive belt (67). 3. Clean idler drive belt (67) and pulley surfaces.

TROUBLE CHART (CON'T.)

Symptom	Cause	Remedy
Tape spills when Stop button is depressed.	1. Brake shoes out of adjustment. 2. Brake pads (62) missing or worn.	1. See "Brake Shoe Adjustment" under Mechanical Adjustments. 2. Replace brake pads (62).
"Wow" during operation of recorder.	1. Brake return spring (58A) disconnected or broken. 2. Oil on driving surfaces.	1. Connect or replace spring (58A). 2. Clean all driving surfaces with a soft cloth and alcohol.
"Flutter" during operation of recorder.	1. Dirty record-playback head (43), pressure pads, capstan shaft, or pressure roller (37).	1. Clean as described under "Cleaning."
No erase or erase is incomplete.	1. Erase head tension spring (33) disconnected or broken. 2. Erase head (47) not adjusted properly.	1. Connect or replace spring (33). 2. See "Erase Head Adjustment" under Mechanical Adjustments.
No tape movement in any mode of operation.	1. Defective motor (80).	1. Replace motor (80).
Tape counter does not function.	1. Tape counter drive belt (94) disconnected or broken.	1. Replace tape counter drive belt (94).

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	C-13.318-6	Cyclac Reel Pan and Shaft Assembly (Black)	35	B-33.418-2	"E" Ring, 3/16" Shaft
2		Knob, Speed Change	36	B-28.163	Washer, Linen
3	73-2254-3	Washer, Felt	37*	*B-33.404	*Pressure Roller
4		Screw	38	B-31.343	Spring Pushbutton Lock Plate
5	D-13.450-2	Rear Escutcheon	39		Washer
6	C-13.318-6	Cyclac Reel Pan and Shaft Assembly	40	B-31.360	Spring, Pressure Roller Tension
7	B-28.163	Washer, Linen	41	B-32.309	Tape Guide Post (Right)
8	B-13.467	Knob	42	57-3439-0	Set Screw, #6-32 x 3/16"
9	73-2254-3	Washer, Felt			Bristol Head
10	B-13.469	Knob, Tone (Top Section)	43	B-36.254	Play-Record Head
11	B-13.468	Knob, Volume (Bottom Sec.)	44	B-19.990	Spring, Play-Record Head
12	19.1728	Front Escutcheon	45	C-19.1696	Pressure Roller Plate
13	B-13.458-2	Pushbutton (Black)	46		Tape Guide Lug
14	B-13.458-1	Pushbutton (Alum.)	47	C-35.756	Erase Head Assembly
15		Cabinet Cover Front Plate	48	73-2233-5	#6 Int. Lockwasher
16	B-33.412	Push-On Stud Nut, 3/16"	49	57-16B-613-0	#6-32 x 13/16" R. H. M. S.
17		Washer	50	57-3934-0	Set Screw, #6-32 x 3/16"
18	B-19.881	Playback Actuating Lever			Bristol Head
19		Washer, Shouldered	51	B-32-300	Tape Guide Post (Right)
20	B-19.868	Record Slide Plate	52	48-410-1	#6-32 Hex Nut
21	B-19.892	Spring, Pressure Pad	53	B-32.260	Tape Guide Post Spacer
22	C-19.839-1	Playback Slide Plate	54	B-31.446-2	Spring, Record Head Return
23*	*B-28.175	*Take-up Belt	55	B-32.495	Shaft, Record Lock
24	E-13.464	Baseplate	56	B-19.877	Lever, Amplifier Switch
25	B-19.858-1	Pushbutton Retainer Bracket	57	B-31.498	Link, Record Lock
26	B-19.876	Pushbutton Lever	58	B-35.835	Plate Assembly, Brake Slide
27	B-31-337	Spring, Pushbutton Return	58A	B-31.338	Spring, Brake Return
28	B-19.859	Pushbutton Hinge Bracket	59	B-35.1046	Shift Plate Assembly
29	B-19.1699-1	Record Lock	60	B-31.339	Spring, Idler Lever Tension
30	B-19.1364-1	Record Lock Mounting Plate	61	B-35.1070-1	Brake Spring Assembly
31		Spring, Record Lock Return	62	B-31.335	Brake Pad, Felt
32		Screw	63	B-35.1051	Idler Lever Assembly
33	B-31.361	Spring, Erase Head Tension	64	B-32.275-1	#8-32 Hex. Hd. Shouldered Screw
34		Record Actuating Lever Ass'y.	65	C-13.257-1	Flywheel
			66	B-35.1066	Sheave Pulley Assembly

RECORDIO MODEL
230

FOLDER 11

MECHANICAL PARTS LIST (CON'T.)

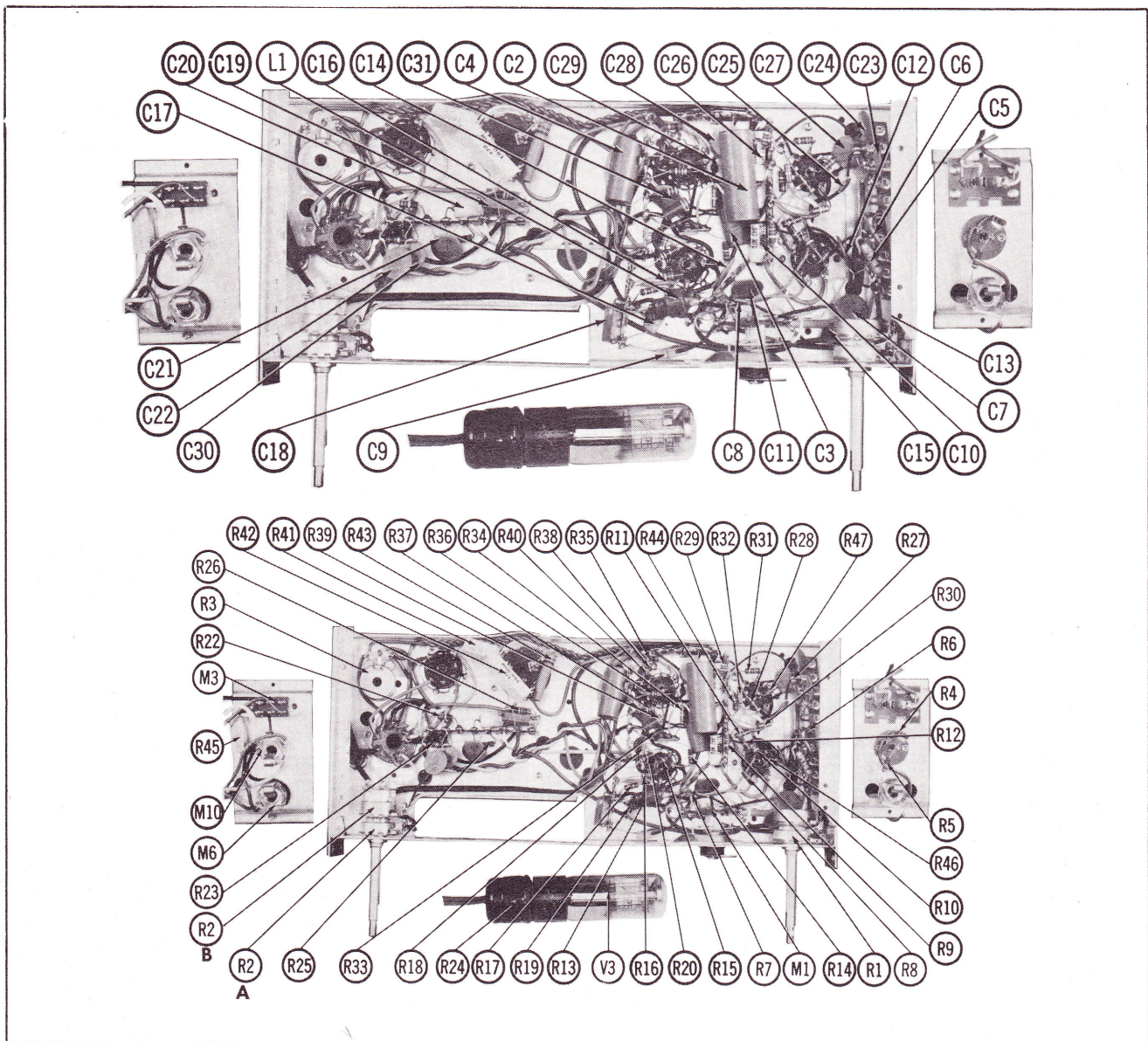
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
83	B-28.194-2	Shock Mount	67*	*B-28.181	*Idler Drive Belt
84	C-19.837	Motor Mounting Plate	68	C-19.968	Brake Drum
85	B-19.875	Lever, Record Actuating	69	57-3589-1	#8-32 x 1/4" Bristol Hd. Set Screw
86	B-31.333	Link, Switch Arm	70	B-32.288	Motor Pulley
87	33.650	Tape Counter	71*	*B-33.408	*Idler Wheel
88	B-19.1739	Counter Mounting Bracket	72	B-35.1064-1	Idler Slide Plate Assembly
89	C-19.968	Brake Drum	73	B-32.264	Idler Slide Bushing
90	B-19.996	Sub Idler Plate	74	B-19.1431-1	Idler Throw-out Lever
91	B-32.275	#8-32 Hex. Hd. Shouldered Screw	75	B-31.327	Spring, Idler Lift Compression
92	B-33.405	Sub Idler Wheel	76	B-19.862	Angle Bracket for Mounting Drive Assembly
93	B-28.163	Linen Washer	77	D-19.1373	Motor & Transformer Mounting Plate
94		Counter Belt	78	B-33.534	Cable Clamp, Nylon
95	B-32.293	Speed Control Shaft	79	B-13.471-1	Motor Fan
96	B-31.324	Spring, Idler Tension (2)	80	D-36.153	Drive Motor
97	B-19.961	Spring Clip	81	48-2221	#10-32 Elastic Stop Nut
98	B-19.976-1	Drive Mounting Plate Bracket	82	B-33.411	Flat Washer
99	73-2231-5	#8 Internal Lockwasher			
100	57-6C-805-1	Screw, #8-32 x 5/16" R. H. M. S.			

* Takeup Drive Belt, WALSCO Part No. 1410-50

* Pressure Roller, WALSCO Part No. 1457

* Idler Drive Belt, WALSCO Part No. 1410-07

* Idler Wheel, WALSCO Part No. 1430



AMP PARTS LIST AND DESCRIPTIONS

TUBES

AMPEREX			GENERAL ELECTRIC			RCA			RAYTHEON			SYLVANIA		
ITEM No.	USE		TYPE		ITEM No.	USE		TYPE		ITEM No.	USE		TYPE	
V1	Bias Osc. -AF Amp.		7025 (6EU7)*		V4	Right Channel AF Amp.		7025 (6EU7)*		V6	Right Channel AF Amp.		7025 (6EU7)*	
V2	Left Channel AF Amp. -		ECL82/6BM8		V5	Right Channel AF Amp. -		ECL82/6BM8						
V3	Record Level Indicator		6E5		V6	Rectifier		5Y3GT						

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	RECORDIO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	50	300	C-5.421-11	AFH3-29-87	CO194	XC4-73	FP333.86	TVLS-3584*
B	100	300						
C	100	300						
C2	16	200	C-5.483-2	PRSI565	BR80-350	QTI-8	TC54	TVA-1507
C3	50	251	C-5.464-2	PRSI265	BR16-250	QTI-15	TC29	TVA-1206
C4	50	25	C-5.464-2	PRSI265	BR50-25	QTI-15	TC29	TVA-1206

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.001		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C6	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	.1 10V			UK10-104	H-05P1	IDP-2-104	TA-010	HY-320
C9	470 100V		1469-00047		5R5T47	CM-19B-471K	MCJ244	MS-347
C10	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C11	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C12	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C13	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C14	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C17	39 10%		1469-000039	TC2-39	22R5Q39	CM-19B-390K	CNO-439	MS-439
C18	820 10%		1469-00082		5R5T82	CM-19B-821K	MCB251	MS-382
C19	100 10%		1469-0001	TC2-100	22R5T1	CM-19B-101K	MCB235	MS-310
C20	.02 1000V		PI088N-02		CUB10S2	16DP-4-203	GEM-1012	10TM-S20
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.1 10V			UK10-104	H-05P1	IDP-2-104	TA-010	HY-320
C26	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C27	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C28	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C29	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C30	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			RECORDIO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Volume, Left	1meg	C-8.253-4				
R2A	Tone, Left	1meg					
B	Volume, Right	1meg	C-8.253-3				
B	Tone, Right	100K					
R3	(On-Off Switch) Hum Balance	500Ω	B-8.240	TT-4	B47-500-S	BU1-103, TM4 or (BU1, CF4, SS6)*	PTA52L, or U2

*"SNAPTROL".

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R4	10K				R26	680K			
R5	470K				R27	100K			
R6	100K				R28	10meg			
R7	100K				R29	6800Ω			
R8	10meg				R30	220K			
R9	6800Ω				R31	2.2meg			
R10	220K				R32	220K			
R11	2.2meg				R33	10meg			
R12	220K				R34	220K			
R13	10meg				R35	100Ω			
R14	220K				R36	47K			
R15	100Ω				R37	470K			
R16	47K				R38	270Ω			
R17	470K				R39	330Ω 1W			
R18	270Ω				R40	3300Ω			
R19	330Ω 1W				R41	33Ω 5W	PW5-33	5W-SQ-33	
R20	3300Ω				R42	470Ω 7W	PW7-470	7W-SQ-470	
R21	3.3Ω 5W	PW5-3.3	5W-SQ-3.3		R43	10K 2W			
R22	220K				R44	100K			
R23	1meg				R45	3.3Ω 5W	PW5-3.3	5W-SQ-3.3	Note 1
R24	1meg				R46	5600Ω			Note 1
R25	1000Ω				R47	5600Ω			

COILS (RF-IF)

Note 1. Not used in some versions.

ITEM No.	USE	REPLACEMENT DATA					NOTES
		RECORDIO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	Bias Osc.	B-1.557					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	RECORDIO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @ 1.1A	560VCT @ .110A	5V @ 1.6A	D-9.262					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V @ 2.4A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	RECORDIO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6000Ω	3-4Ω	C-9.303-2	A-2901	A-3849	24S64	S-56Z①	① Drill New Mounting Hole(s)
T3	6000Ω	3-4Ω	C-9.303-2	A-2901	A-3849	24S64	S-56Z①	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA	
	SIZE	FIELD	V. C. IMP.	RECORDIO PART No.	QUAM PART No.
SP1	5" x 7"	PM	3-4Ω	C-30.363-1 *	57A1
SP2	5" x 7"	PM	3-4Ω	C-30.363-1 *	57A1

* Alternate Part #C-30.370-1

MISCELLANEOUS

ITEM No.	PART NAME	RECORDIO PART No.
M1	Switch, Record-Play	B-11.292B
M2	Switch, Monitor	B-11.298
M3	Switch, Stereo-Mono	B-11.233-1

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in 12 Colors
8524 (Stranded) Available in 12 Colors
Power Cord Use BELDEN No. 17106 (Plastic) or 17126 (Rubber) - 6 Ft.
17109 (Plastic) or 17129 (Rubber) - 9 Ft.
Power Cord (Interlock Type) Use BELDEN No. 8874 (Rubber) or 8895 (Plastic)
Low-Loss Shielded Lead (Interconnecting) Use BELDEN No. 8401 or 8421
Phono Pick-up Arm Cable Use BELDEN No. 8430 (Two Conductor-Unshielded)
8429 (Two Conductor-Shielded)
8419 (Three Conductor-Shielded)

WIRING DATA

RECORDIO MODEL 230

